

JLOD - What's New in JLOD V7.0

Thomas Kelleher



December 2019

Distribution statement A: Approved for public release: Distribution is unlimited

Conflict Simulation Laboratory
<https://csi.llnl.gov>





- Operating Systems for V7.0
 - RHEL 7.6/7.7 (default)



Enhancements & Improvements

- Aggregate Combat in JLVC
- Network Bandwidth reduction
- Improved Logistics Control
- Situation Report
- OBS Exporting
- Who-Shot-Who quick linkage
- Quick Magic Health/Log settings



Aggregate Combat – Technology Preview

- Technology Preview using the Aggregate Combat Service
 - Currently only with in the JLVC Federation
 - Expected full capability to be released for JLVC 2020
 - JLOD V7.0.x patches expected to support more capabilities
- Supports Ground Direct-Fire Combat
 - JLOD ⇔ JLOD, JLOD ⇔ JCATS, JLOD ⇔ MTWS
 - Consumes platform level logistics during combat
 - Uses data exported from Fchar data for PhPk, Ranges, target classes, etc
- Limited evaluation / examination of Combat Datasets
 - View and Plot Kills/Supply Usages verses Time
 - Examine any Aggregate Combat in the federation
- Aggregate Combat Estimator
 - Support What-If calculations between two units



Aggregate Combat in the JLVC Federation

- Integration into the JLVC Federation
 - ACS Interactions: InitiateCombat, CombatResults, TerminateCombat
 - Update of Federation State object to signal ACS
- Integrated Damage
 - BDA Reporting of combat losses
 - Intel State updates on attrition notification
- Work still in progress
 - Notification to ACS when engaging platforms are logistically resupplied
 - Consumption of ACS Combat Status for notification of active engagements
 - Tracking of entities in multiple engagements
 - Use of Intel State when in aggregate combat to notify ACE-IOS

Fix List Items

- JLOD-1357
- JLOD-1358
- JLOD-1367
- JLOD-1377



Aggregate Combat Engagements Window

➤ Technology Preview

➤ Work in process

➤ Status and Control Window

➤ Commands

➤ Filters

➤ Status

AggCombat Status (In control)

Commands

Start Combat View Selected Engagement Refresh Status Display Combat Clear Displayed Estimate Combat Tester

Filters

Filter Name

Active Combat Engagement History

Status

Right-Click for Options; Double-Click to view Dataset

	Unit-A Name	A->B	Engagement S	A-ID	Unit-B Name	B->A	Engagement S	B-ID
1691864	101 ARM BN	Attack	Engaging	3	1 BN 1MAR			

Fix List Items

- JLOD-1372





Aggregate Combat Graphic Display

- Visually Display Engagements
 - Directed arrows show engagements
 - Hover Tip
 - Right-Click to commands

AggCombat Status (In control)

Commands: Start Combat View Selected Engagement Refresh Status **Display Combat** Clear Displayed Estimate Combat Tester

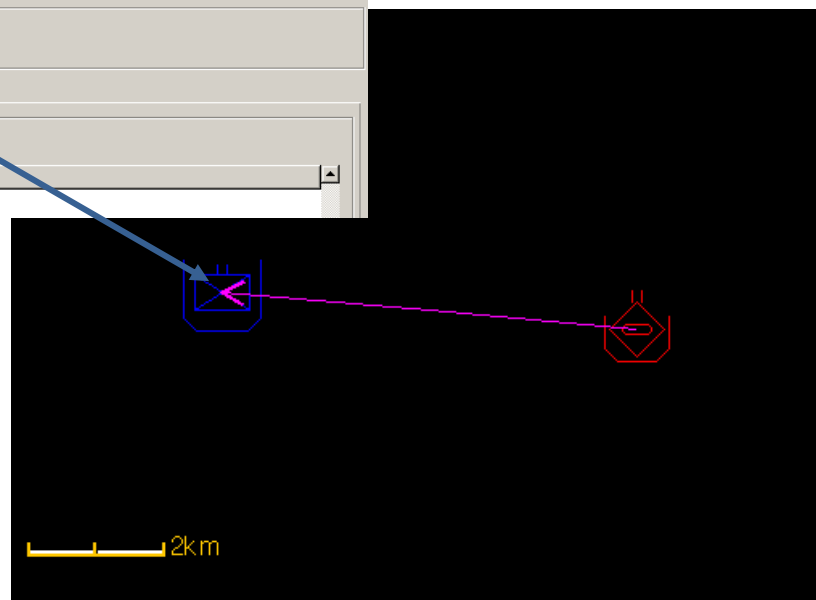
Filters: Filter Name  

Active Combat Engagement History

Status

Right-Click for Options; Double-Click to view Dataset

	Unit-A Name	A->B	Engagement St	A-ID	Unit-B Name	B->A	Engagement St	B-ID
1691864	101 ARM BN	Attack	Engaging	3	1 BN IMAR			



Fix List Items

- JLOD-1360



Aggregate Combat Dataset Viewer

- View Results of Combat
 - Double Click engagement
- Still a work in progress
- Viewer can Graph Wounding and Supplies
 - Data items can be grouped
 - Plotted verses JLOD Sim Time

Filter Name [] [] [X]

Active Combat | Engagement History

Status

Right-Click for Options; Double-Click to view Dataset

	Unit-A Name	A->B	Engagement S	A-ID	Unit-B Name	B->A	Engagement S	B-ID
1691864	101 ARM BN	Attack	Engaging	3	1 BN 1MAR			

AggCombat DataSet (In control)

Summary Info

ACEMinutesToRun 0

Team-A Info

Unit Name 101 ARM BN

Unit OBSID U00002EATX1

Number of Attacks 60

Team-B Info

Unit Name 1 BN 1MAR

Unit OBSID U00002EAJ18

Number of Attacks 60

Graph Combat Distances

Graph Engagement Distances ☐ Use Team-A Results ☐ Use Team-B Results

Force Attrition | Supplies Expended

Graph Commands

Graph Forces ☒ Graph KIA ☐ Graph Mobility Kills ☐ Stack Results ☐ Graph Mob/Fire Kills ☐ Graph Firepower Kills ☐ Cumulate Results

Team-A Attrition

Double-Click Graph Flag Column cell to toggle Graphing

Graph Flag	Entity Type	Alive	F-Kill	M-Kill	MF-Kill	Dead
Graph	BJ 212 4X4	0	0	0	0	2
Graph	PRC RTO	0	0	0	0	2
Graph	PRC PISTOL 9MM	0	0	0	0	33
Graph	PRC RIFLEMAN TYPE 56	0	0	0	0	69
Graph	GOLD TONE BOXED BODY VAN	0	0	0	0	2
Graph	TYPE 99 I MBT	0	0	0	0	19
Graph	TYPE 88B TANK	0	0	0	0	3

Set All Graph Flags Deselect all Graph Flags

Team-B Attrition

Double-Click Graph Flag Column cell to toggle Graphing

Graph Flag	Entity Type	Alive	F-Kill	M-Kill	MF-Kill	Dead
Graph	US PISTOL M9	0	0	0	0	19
Graph	US RTO	0	0	0	0	88
Graph	HMMWV CARGO M998	0	0	0	0	26
Graph	US M4	0	0	0	0	58
Graph	US M203	0	0	0	0	60
Graph	US SURGEON	0	0	0	0	2
Graph	HMMWV ARMORED AMBULANCE M997	0	0	0	0	4

Set All Graph Flags Deselect All Graph Flags

Fix List Items

- JLOD-1372

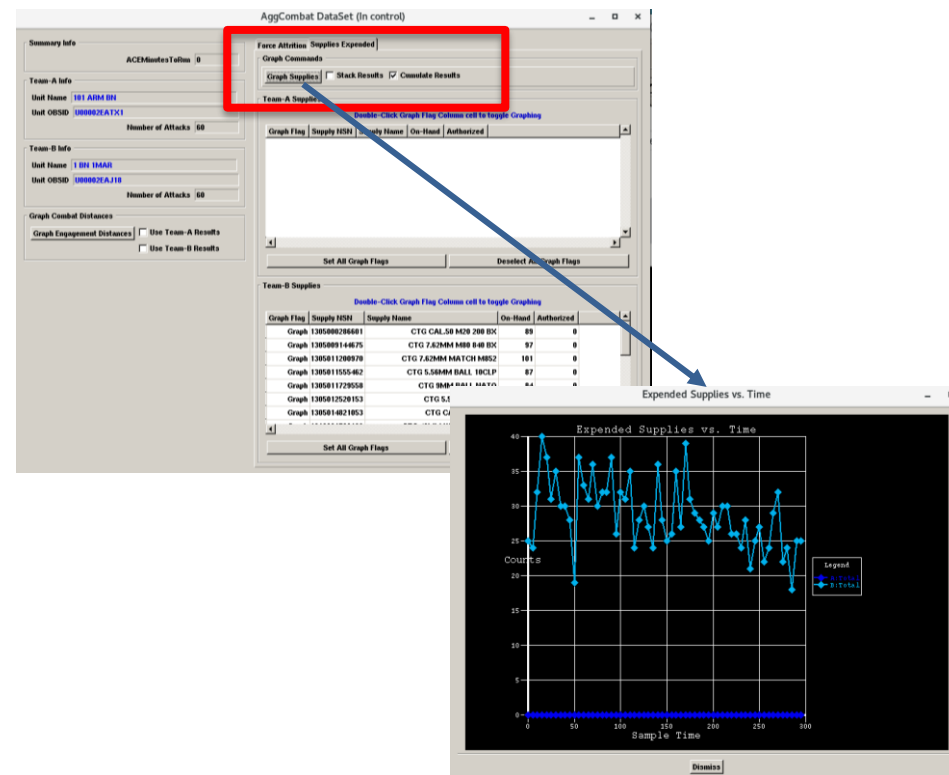
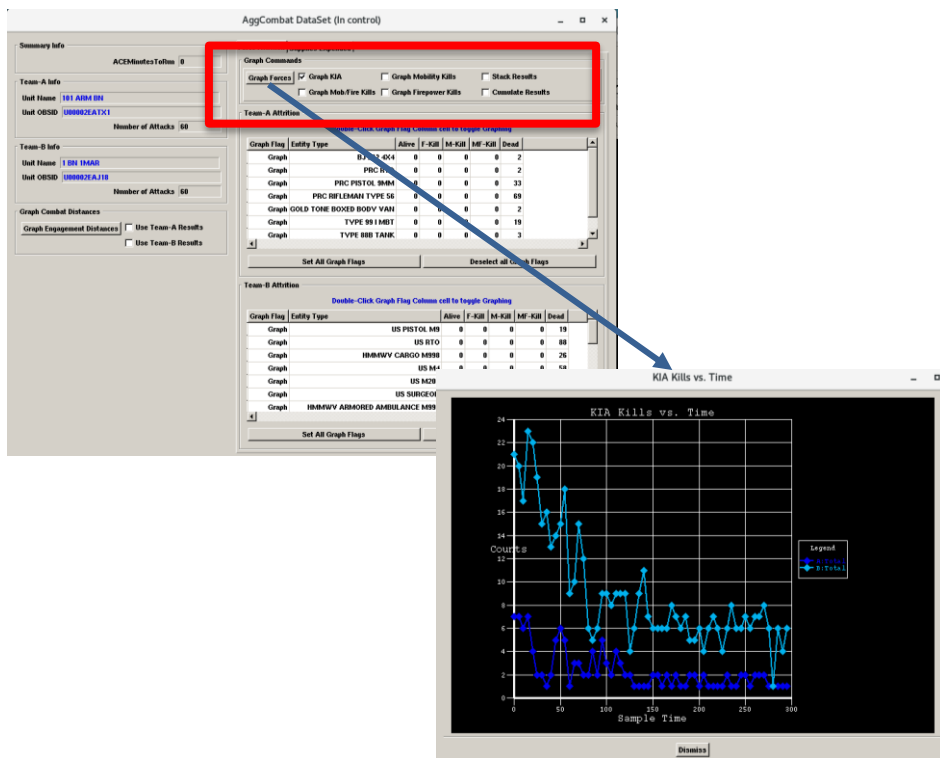


Aggregate Combat Dataset Graph

Fix List Items

- JLOD-1372

- Graphs are totals returned from ACS
 - Health State updates
 - Supply usage





Aggregate Combat Estimator

Agg Combat Estimator (In control)

Summary Inputs | Unit Details

Combat Engine Control Settings

Simulation Run's Tag: test-Run-1

Engagement Duration (m): 5

Start Combat Generate Test Data

Unit-A Inputs

Shooter Name: 101 ARM BN

Shooter OBSID: U00002EATX1

Shooter Location: 9:38:48.123N 8:17:21.256W

Unit-B Inputs

Target Name: 1 BN 1MAR

Target OBSID: U00002EAJ18

Target Location: 9:39:05.320N 8:20:41.554W

Combat Engine Control Settings

AttritionIntervalSecs: 10

IntervalSecs: 2

FOVSearchTimeSecs: 2

☐ Detailed logging

View Engagement

Past Estimations

ID	User Tag	Execution Minutes
-2	test-Run-1	5

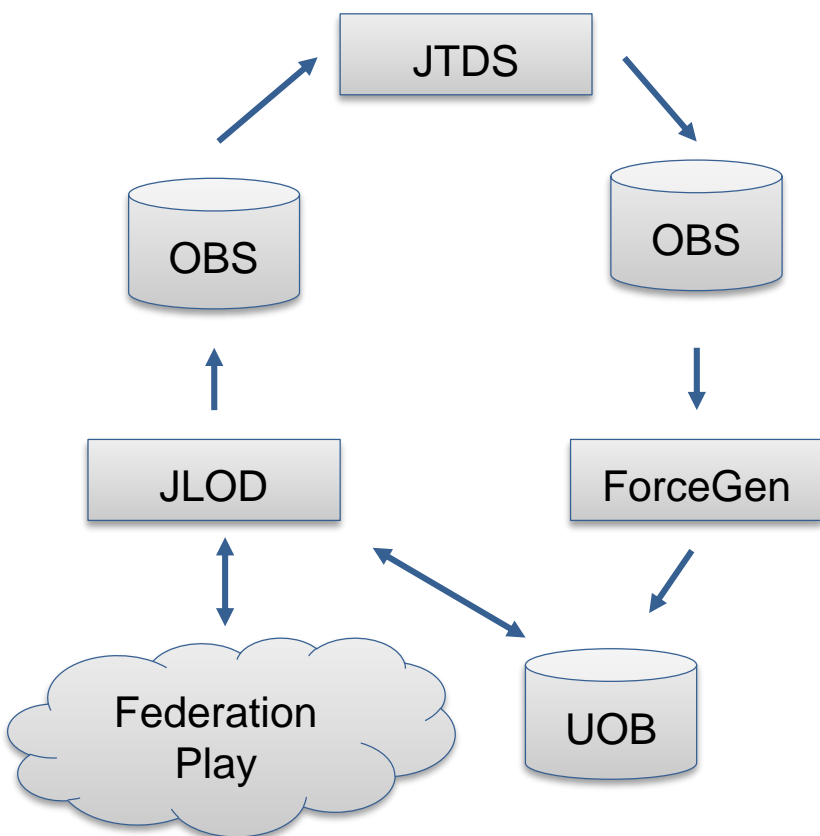
- Estimate Combat between Units
 - Support What-Ifs
- Technology Preview
 - Still a work in progress
 - Intended to be stand alone support
- Generates all data like ACS
 - Supports Combat results viewer

Fix List Items

- JLOD-1372



OBS Exporting - Overview



- Several Aspects of Importing OBS Updated
 - Additional OBS data items tracked
 - Sanitizing Input Data
- Exporting Life cycle
 - Capture original data – OBS Parsing
 - Convert to local data – ForceGen tool
 - Populate Scenario – Federation Play
 - Export scenario – OBS exporting
- Federation Play Data Quality
 - Federation allows more flexibility than OBS
 - Not all federates populate all the data
 - JLOD does best-effort to convert provided data



Improved OBS Parsing

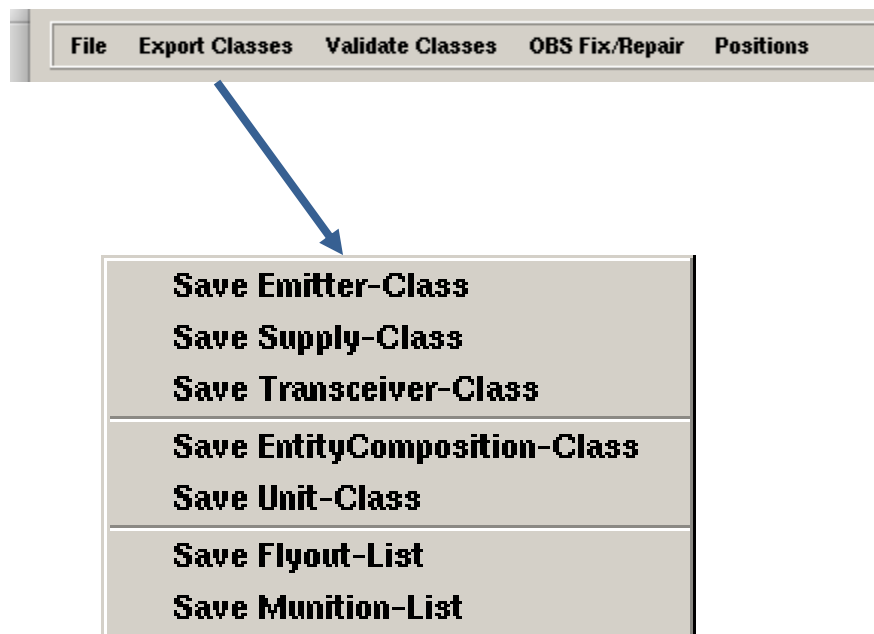
- Code base was refactored
 - OBS V2.0, V3.0, V4.0 and V4.1 use similar class processing software
 - Consistent error checking and input cleanup steps performed
- Captured more OBS data items
 - Visualization Symbol Name
 - Shared Flyout and Munition list data
- Sanitize input Strings (only Class Data Types)
 - Removed leading/Trailing Blanks
 - Removed special Control Characters seen in sample files
- SAX Parser (V4.1)
 - Improved SupplyClass decoding
- Fixed Embarked Unit's Position
 - Only OBS V4.x versions impacted
 - Unit no longer placed at 0N, 0E

Fix List Items

- JLOD-1356
- JLOD-1362
- JLOD-1363
- JLOD-1374
- JLOD-1376
- JLOD-1393
- JLOD-1404



ForceGen – Save OBS Class Data to CSV files

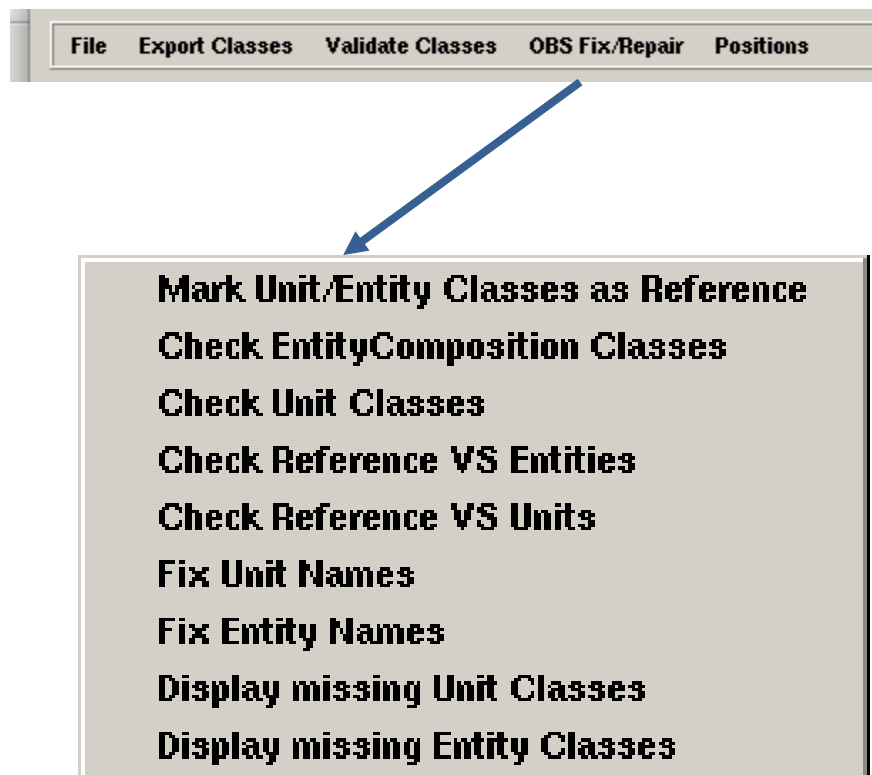


- Dump OBS Class data to CSV Files
- Supports all versions of OBS files
 - V1.4, V2.0, V3.0, V4.0, V4.1
- Part of OBS Export effort
 - Ensure exported/consumed data matches

Fix List Items
• JLOD-1375



ForceGen: Simple Repairs to non-JTDS OBS files

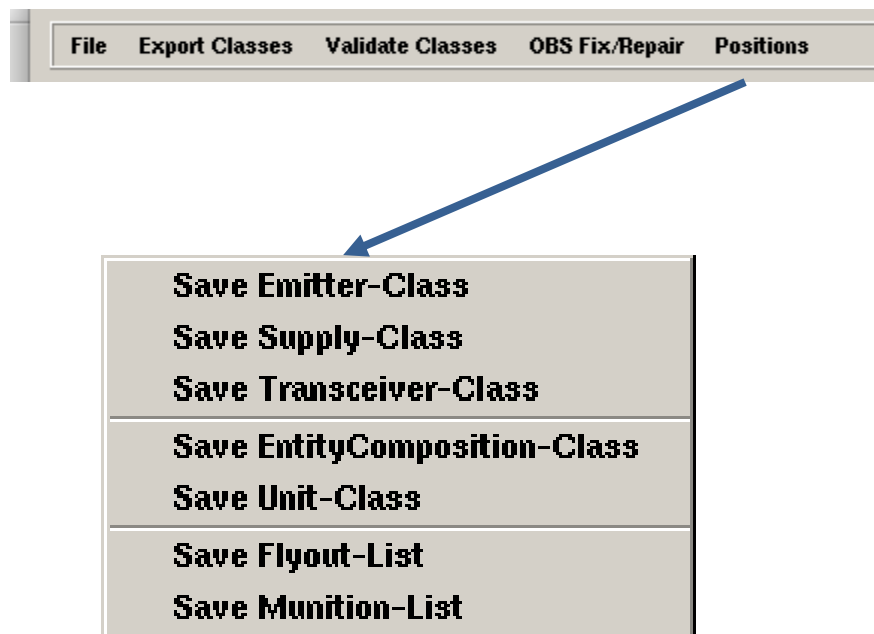


- Simple Repairs/Fixes to OBS files
 - Non-JTDS generated files
- Entity/Unit Name Repairs
- Unit Class remapping
- Entity Class remapping

Fix List Items
• JLOD-1392



ForceGen – Save Entity Positions to CSV files



- Dump all Entity Positions to a CSV file
 - Input can be used for Positioning/Tasking in the simulation
- Supports all versions of OBS files
 - V1.4, V2.0, V3.0, V4.0, V4.1
- Part of OBS Export effort
 - Ensure exported/consumed data matches

Fix List Items
• JLOD-1403



OBS Exporting: Federation Play

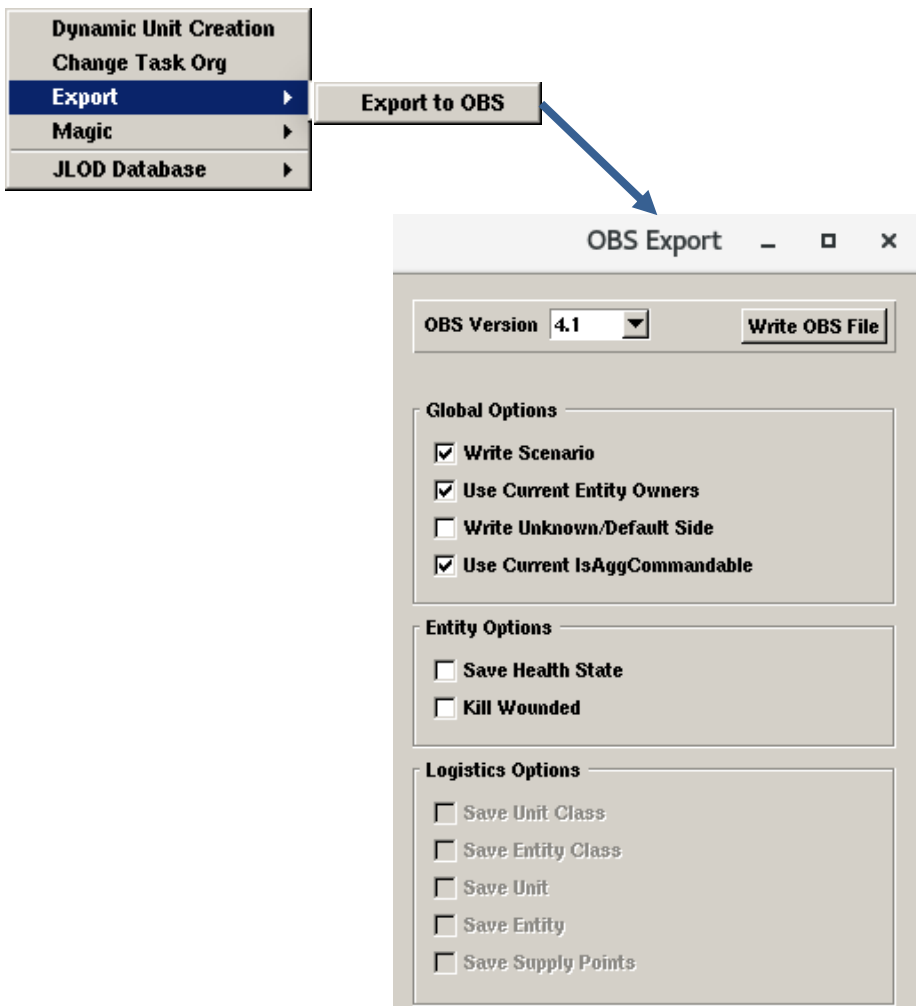
- Data Source Tracking (ie. From OBS, Federation, etc)
 - Class and Instance data are marked from OBS, Federation, etc
- OBS will save the following
 - Positions of Units and Entities that are not part of an active Unit
 - Towed states
 - Health States (ALIVE/DEAD only)
 - Current Controlling Simulation (post transfers)
 - Embarked state
- OBS Data Loss due to Federation conversion
 - Positions of entities in an aggregate are not saved to OBS
 - Only ALIVE and DEAD are valid state from OBS
 - Platform level logistics are only saved from JLOD
 - Only OBS and DUC entities are saved from the federation.
 - JLOD can optionally add its REC'ed entities to the output OBS file

Fix List Items
• JLOD-1379

NOTE: OBS snapshot of externals only as good as data provided



Improved OBS Exporting



- Take snapshot anytime
 - Best when all federates are playing
- Write several version of the OBS file
- Fixes this version include
 - Supply Class – DODIC and DIS codes
 - Track Entity Class Visualization Symbol
 - OBS V4.1 Header fix (DDMS Person tags)
 - Instance Source Tracking
 - Supply Classes correct write Burst Descriptions
 - Smaller XML files via empty XML tags

Fix List Items

- JLOD-1355
- JLOD-1363
- JLOD-1366
- JLOD-1354
- JLOD-1373
- JLOD-1380



Quick Link to Flyout Damage Report

Fix List Items
• JLOD-1398

Controller Panel (In control)

TOE Display Refresh Reports Status Alerts

Auto-Refresh

Name: B52H STRATOFORTRESS_113468 LVC ID: U00003000-47

Entity Status

Alive	Not Repairing	Not Jamming	IFF Inactive	Stationary
Dismounted	Not Crewed	Not Towing	Unhitched	Not Flying

Full Flyout Report Filtered Shot Report

Filters

Time Period: All ☐ Start Time: 21

Reference # Range: All ☒ Start Number: 0

Shooting Area: All ☒ Location:

Area of Impact: All ☒ Location:

Shooters: All ☐ OBS ID: U00003000-47

Targets: All ☒ OBS ID:

Launching Federate: All ☒ JLOD

Guidance Type: All ☒ Cruise Missile

Impact Damage Type: All ☒ No Effect

Damage Reason: All ☒ Engagement Success

Detonation Results: All ☒ Other

Was Shot Down: ☐ Did Impact: ☒

Simulation
Incoming Shots
Shots Taken
SPOT
GenAdmin
Position

- Perform data query from Missile Flyout Report
 - As Shooter and Target
 - Auto-fills LVCID into Query Tab
 - Performs query for Engagement Results
- Incoming Shots Option
 - Gathers all BDA records where entity was a target
- Shots Taken
 - Gathers all BDA records where entity was the shooter
- BDA Records are gathered from Federation
 - Not all simulations provide hit/miss records
 - Ground to Ground Combat is not captured



Added Sea/Land Mine Engagements Reports

- Added Sea/Land mine engagements to missile flyout report
 - NOTE: Only JLOD and MTWS mines will captured in report
- Added ability to capture external Sea/Land mine engagements (must use seamine)

Missile Flyout Report (In control)

Display

Report Type Selections

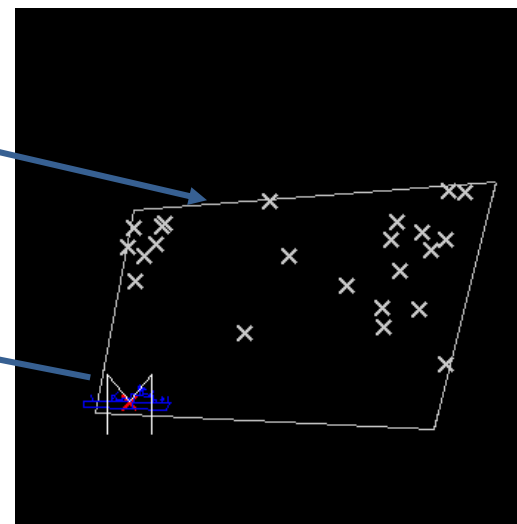
Select All ☐ AIR to AIR ☐ AIR to NAV ☐ AIR to GND ☐ NAV to AIR ☐ NAV to NAV ☐ NAV to GND

Deselect All ☐ GND to AIR ☐ GND to NAV ☐ GND to GND ☐ Missiles ☒ Sea Mines ☐ Land Mines

Full Flyout Report | Filtered Shot Report

Launching Information

Shot ID	Report Type	Was Killed	Was Jammed	Has Impacted	Damage Count	Launching Federate	Launching Entity Name
1	SeaMine	No		Yes	1	JLOD1	



- Fix List Items**
- JLOD-1342
 - JLOD-1343



Removed LogMsgType Controls

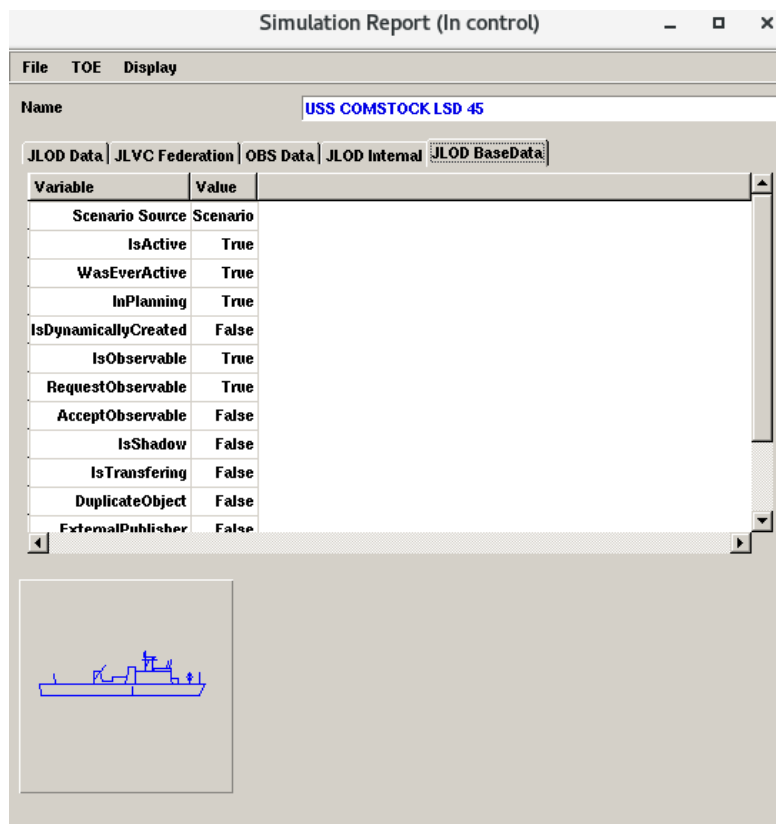
- Removed a depreciated user control
- User Windows impacted
 - Controller Panel – Logistics Pane
 - SimulationReportWindow
 - GroupControl – Magic Logistics
- Removed Filter

Fix List Items
• JLOD-1401

Grouping	Attribute	Description	Range of Values
Database (Dynamic)			
	Log Msg Type	Controlled communication scheme for logistics	NONE, JLOD, JLVC



Extended Simulation Report Window



- Added internal Federation State information
 - Scenario Source indicates entity's source
 - Other state can be used for diagnostics
- Population Entities can now seen in report.
 - JLOD's Population Entity info can be examined

Fix List Items
• JLOD-1395



Improved Entity Logistics Controls

Entity Info | Movement | TEL Plan | Appearance | Damage Info | IFF Info | Intel State | Logistics | **Supplies** | Tasking | Planning

JLOD Log Message Type: Last Time Federated Logistics Report was Sent:

Class Selections

☒ Class-I ☒ Class-II ☒ Class-III ☒ Class-IV ☒ Class-V ☐ All Supplies
☒ Class-VI ☒ Class-VII ☒ Class-VIII ☒ Class-IX ☒ Class-X

Personal Load

Source	Class	Supply Name	Supply ID	DODIC	Amount	Units	Percent
fChar	3	Fuel	9130010315816		10000	GL	100%
fChar	1	Water	8960000000170		6	GL	100%
fChar	1	Food	8970001491094		18	GL	100%

Carry Load

Source	Class	Supply Name	Supply ID	DODIC	Owner	Amount	Units	Percent
fChar	3	Fuel	9130010315816		Unknown	30000	GL	100%

Selected Supply: Selected Load:

- Display of supplies controlled by class-type
- Sort Table by Selecting Header
- Right-Click Commands
 - Resupply – Resupply selected item
 - Dump – dump selected item
 - Resupply All – Resupply all in table
 - DumpAll – Dump all from table
- Color Coded Supply Levels
 - 85%+ = Green
 - 70%+ = Yellow
 - 50%+ = Red
 - 50% and Lower = BLACK

Fix List Items
• JLOD-1397



Improved Magic Health Controls

Magic Health (In control)

Health Orders

☐ Mobility Kill ☐ MF-Kill ☐ Kill
☐ Firepower Kill ☐ Fix All Wounds ☒ Resurrect

☐ Include Subordinate Units ☐ Include Immediate Subordinate Entities

Select ANY SYSTEMs or ROSTERs or POPULATIONs that are ACTIVE

Order Recipients

Row	Item Type	Name	OBS ID
0	Entity	USS COMSTOCK LSD 45	U00002EAQZR
1			

Load Group
Clear Table
Insert Row
Delete Row

SUBMIT Order

- Enabled Processing of Units
- Process all Subordinate Entities
 - Immediate Entities are included
- Process all Subordinate Units
 - Auto selects Include Entities
 - Recursively processes Units

Fix List Items
• JLOD-1400



Improved Magic Logistics Controls

Position/Tasking Tool
Emissions Scheduler Tool
Distance Tool
Filter Tool
Group Orders Tool
Locations Tool
Logistics Tool
Movement Controls
Movement Orders Tool
Networks
Radio MSEL Tool
Population Moods
Mines / Lanes / Barriers
Magic

Position
Health
Health (Implicit)
Shoot
Repair Status
Logistics Percent

GUI Moved

Controller Group Orders Tool (In control)

Order Input: Magic Logistics

Orders

Magic Log Percent (In control)

Logistics Levels

Supply Classes to Impact

☐ Class-1 ☐ Class-2 ☐ Class-3 ☐ Class-4 ☐ Class-5 ☐ Class-6 ☐ Class-7 ☐ Class-8 ☐ Class-9 ☐ Class-10

Set All Clear All

Desired Stockage Percent: 100

☐ Include Subordinate Units ☐ Include Immediate Subordinate Entities

Select ANY SYSTEMS or ROSTERS or POPULATIONS that are ACTIVE

Order Recipients

Row	Rem Type	Name	OBS ID

Load Group Clear Table Insert Row Delete Row

SUBMIT Order

- Enabled Processing of Units
- Process all Subordinate Entities
 - Immediate Entities are included
- Process all Subordinate Units
 - Auto selects Include Entities
 - Recursively processes Units
- Select Supply Class Types
 - Can adjust several at same time
 - Adjust levels

Fix List Items
• JLOD-1402



Added Situation Report

- Generate Report On-Demand
 - Control Panel -> Reports -> SitRep
- Captures the following info
 - Time of report
 - Location at time of report
 - Unit reporting
 - Subordinate Units Location
 - Logistics Values
 - Personal and Equipment

SitRep Report

File

Times

2019 Mar 12 10:53:30

Situation Report Fields

Time 20190312T105330Z

Unit 1 BN 1MAR

Echelon

Location (Lat/Lon) 9:39:05.320N 8:20:41.554W

Location (MGRS) 29PNL719669

Preview View full report Create Report

Refresh Delete

SITREP text

Report Text

** Situation Report **

Reporting Unit: 1 BN 1MAR As of : 20190312T105330Z

Location (MGRS) : 29PNL719669

Location (lat/lon) : 9:39:05.320N 8:20:41.554W

Subordinate Information

Subordinate Unit Name	Location (MGRS)	Unit Status
HS CO 1BN1MAR	29PNL719669	N/A
WPNS CO 1BN1MAR	29PNL718670	N/A
A CO 1BN1MAR	29PNL726664	N/A
B CO 1BN1MAR	29PNL716670	N/A
C CO 1BN1MAR	29PNL730669	N/A

Logistics Information

NSN	DODIC	Munition Nomenclature	Auth	OnHand	O/H %
1305000286601	A543	CTG CAL 50 M20 200 BX	3000	3000	100
1305009144675	A130	CTG 7.62MM M80 840 BX	14418	14418	100
1305011200970	A171	CTG 7.62MM HATCH M852	1020	1020	100
1305011555462	A059	CTG 5.56MM BALL 10CLP	154110	154110	100
1305011729558	A363	CTG 9MM BALL NATO	5760	5760	100
1305012520153	A064	CTG 5.56MM LKD 4 1	69600	69600	100
1305014821053	AA58	CTG CALIBER 25MM	60	60	100
1310001593198	B535	CTG 40MM WHITE M583A1	412	412	100
1310004713615	B570	40MM HE M406 LNKD B570	288	288	100
1310009920451	B546	CTG 40MM M433	1648	1648	100
1310010227680	B642	CART 60MM HE M720	360	360	100
1310012409252	B630	CTG 60MM SMOKE WP W F	108	108	100
1310012588689	B647	CTG 60MM ILLUM M721	72	72	100
1310014209268	B542	CTG 40MM HEDP M430	900	900	100
1315007296566	C230	81MM SMOKE WP M57 PD FUZE C230	80	80	100
1315011998688	C870	81MM MTR RP SMK M819A1	128	128	100
1315013537619	C869	81MM MTR HE M889A1	120	120	100
1340014435477	HA08	ROCKET AND LAUNCHER	36	36	100
1410013135366	PV01	GM SURF BGM 71D 3B	112	112	100
1427014227617	PL34	GM AND LAUNCHER JAVELIN	32	32	100
1305009352109	A605	50CAL BALL M33 LNKD MG	8100	8100	100

NSN	U/I	Fuel Nomenclature	Auth	OnHand	O/H %
9130010315816	GL	TURBINE FUEL AVIATI	3035	3035	100

PERSONNEL Information

Lifeform Nomenclature	Auth	Dead	Wounded	Alive	O/H %
US PISTOL M9	19	0	0	19	100
US RTO	88	0	0	88	100
US M4	250	0	0	250	100
US M203	103	0	0	103	100
US SURGEON	2	0	0	2	100
US M249	87	0	0	87	100

Dismiss

Fix List Items

- JLOD-1405



Simulation Improvements and Fixes

- Set Orientation as an option with magic set position
- Fixed processing of empty string from federation
- Reduced LogReport network traffic from federation
- Magic Health Updates use the new Smoking/Burning effects routines
- Fixed Crash when using the Entity Report
- Fixed Supply Package Editor to use OBS Supplies values
- Fixed Crash when using Logistics Tool to load package with a bad supply name
- Added LVCID to the BDA interaction to support mounted entities.
- Improved Health adjustments to drive IntelState and ACE-IOS intel feeds

Fix List Items

- JLOD-1340
- JLOD-1351
- JLOD-1368
- JLOD-1370
- JLOD-1396
- JLOD-1406
- JLOD-1407
- JLOD-1365
- JLOD-1377



Workstation Improvements and Fixes

- Population Entities and Missions now can open Federation Reports
- Fixed Display of OBS Supplies on both PEChar and RosterChar data viewer windows.
- Improved support for Scene Generators (MUSE/VBS3/etc)
 - On kills, both FlamesPresent and Smoking appearances are set

Fix List Items

- JLOD-1344
- JLOD-1381
- JLOD-1369



New Filter Attributes

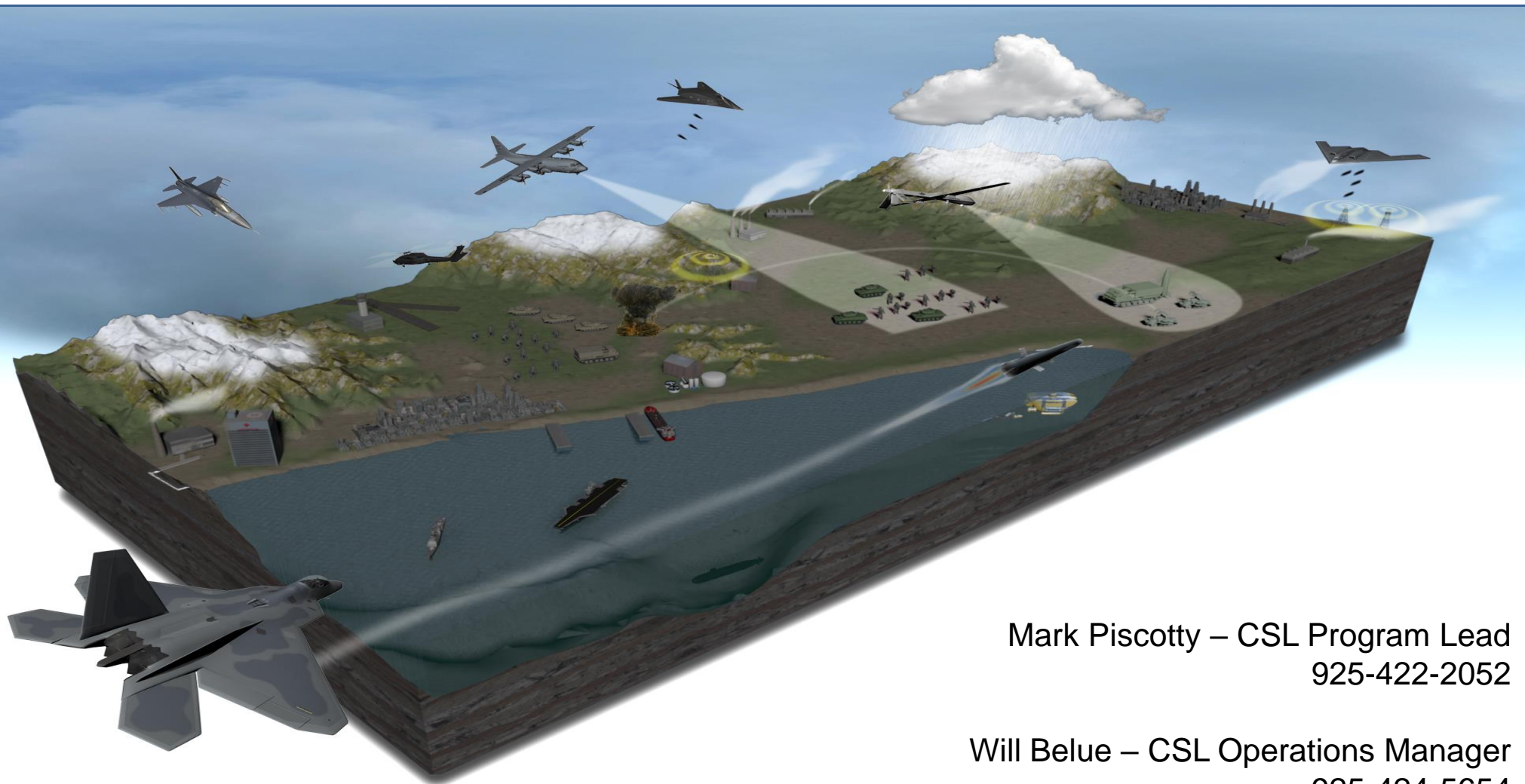
- Filter Attributes used in Reports, Raster Displays, TOE filtering

Grouping	Attribute	Description	Range of Values
Database			
	Self Detonation Munition	Munition Name	String that can be empty
	Is Flyout	Is on the OBS Flyout List	On or NOT On OBS flyout list
	Scenario DataType	Defines where the entity was added to the as-played game	Unknown, Scenario, Ad-Hoc, Run-Time

Fix List Items

- JLOD-1371
- JLOD-1378
- JLOD-1399

Questions?



Mark Piscotty – CSL Program Lead
925-422-2052

Will Belue – CSL Operations Manager
925-424-5654



Backups

